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Hyun Hee Choi, J.Orthop.Trauma Surg.Relat.Res. | Volume 14
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Nail plate and bed reconstruction for pincer nail deformity

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Pincer nail deformity is a severe condition in which the nail bed becomes compressed and the nail shows an over curvature. We retrospectively analysed 13 pincer nail deformities treated using our nail plate and bed reconstruction technique. Visual analogue scale scores, the width of nail root, width of nail tip, height of nail tip, width index, and height index were assessed before and after surgery. The over curvature was corrected after detachment of the nail plate. The nail fold was pushed underneath the nail plate and then fixed. The width of nail tip significantly increased after surgery ($p < 0.05$) and was maintained during follow-up. The height of nail tip decreased after surgery ($p < 0.05$). This nail plate and bed reconstruction technique is a simple and quick surgical method for correcting deformities and reduces risks of complications such as skin necrosis and infection compared to other existing surgical techniques. We recommend this efficient surgical technique for the treatment of pincer nails.

Fig. 1. Illustration of nail bending technique and nail bed fixation.
(A) The nail plate is bent to detach periosteum at the point of the maximal curve.
(B) The nail fold is placed and fixed underneath the lifted nail bed to act as a buttress (curved arrow: nail plate, white arrow: nail bed).

Biography

Hyun Hee Choi has her expertise in evaluation and passion in improving health. Her specialty and interesting subjects are coronary artery disease intervention and endovascular treatment of peripheral artery disease. She obtained a degree of Physics in Elwha Woman's University before being a doctor. She has tried to use her knowledge of physics to evaluation and improvement of medical department.

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Consentplus - Improving the consent process in elective lower limb arthroplasty

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Background of study: Following the Montgomery ruling, consent is now a matter of law. The medical professionals have to show proof that risks, and implications and material risks are explained to the patient and that they have accepted to go ahead with surgery.

Materials and Methods: We devised a free web-based programme (www.consentplus.com) which introduces a documented checkpoint to the consent process in hip and knee replacement surgery. It enables reproducible high-quality bite-sized information delivery to patients and their families in an optimal environment. It utilises the flip classroom principle to facilitate dialogue between doctors and patients. It generates physical documentation to show patients' knowledge and understanding of the risks; to produce a truly informed consent.

Results: 1567 users completed the Consent PLUS process over 28 hospitals across the UK. 98.1% of users were satisfied with Consent PLUS in terms of quality of service and information delivered. Users' self-rated knowledge increased by 29%, independent of age group, prior knowledge or check-point scores. Supportive documentation for 100% of the users, which facilitated the consent process but did not replace the consultation. 60% of users accessed the system via desktop computers, 23% via tablet and 17% via mobile phone. 55 consultant surgeons and 28 hospitals have been registered into the system by the users. 96.9% of users found Consent PLUS useful and 96.3% would recommend it to their friends. 92.6% would use it again. Currently over 2560 users are registered on the website.

Conclusion: Consent PLUS can facilitate information delivery and improve patients' understanding of the risks of surgery and its implications subjectively and objectively. Consent PLUS is a tool designed to enhance and facilitate the consent process, not to replace the current consent forms.

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Does unicompartmental knee arthroplasty have worse outcomes in spontaneous osteonecrosis of the knee than in medial compartment osteoarthritis? A systematic review and meta-analysis

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Introduction: The role of Unicompartmental knee arthroplasty (UKA) in spontaneous osteonecrosis of the knee (SONK) remains controversial, even though SONK involves only one compartment of the knee joint. We aimed to compare the survival rate and clinical outcomes of UKA in SONK and medial compartment osteoarthritis (MOA) via a meta-analysis of previous studies.

Materials and Methods: MEDLINE, Embase, and Cochrane Library were searched up to January 2018 with keywords related to SONK and knee arthroplasty. Studies were selected with predetermined inclusion criteria: (1) medial UKA as the primary procedure, (2) reporting implant survival or clinical outcomes of osteonecrosis and osteoarthritis, and (3) follow-up period > 1 year. Quality assessment was performed using the risk of bias assessment tool for non-randomized studies. A random-effects model was used to estimate the pooled relative risk (RR) and standardized mean difference.

Results: The incidence of UKA revision for any reason was significantly higher in SONK than in MOA group (pooled RR=1.83, p=0.009). However, the risk of revision due to aseptic loosening was not significantly different between the groups (Figure 1). Moreover, when stratified by the study quality, high quality studies showed similar risk of overall revision in SONK and MOA (p=0.71). Subgroup analysis revealed no significant difference in failure between SONK and MOA after cemented mobile and fixed bearing UKA. Results of uncemented UKA was reported only in one study, which showed higher failure of SONK compared to MOA. Clinical outcomes after UKA were similar between SONK and MOA (p=0.66).

Conclusions: Cemented UKA has similar survival and clinical outcomes in SONK and MOA. Prospective studies designed specifically to compare the UKA outcomes in SONK and MOA are necessary.

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Mid-term outcomes and evaluation following implantation with a recalled modular neck femoral stem

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Neck-stem corrosion has been associated with Adverse Local Tissue Reaction (ALTR) in dual-taper femoral stems. In this study, we examine a single surgeon's retrospective case series of 42 hips in 38 patients who underwent primary total hip arthroplasty (THA) with a dual-taper femoral component. Evaluation consists of clinical exam, labs including metal ion levels, and MARS MRI. We propose that hip aspiration would be a beneficial adjunct. Each hip aspirate was classified into Class 1, 2, or 3, based on qualitative variables. 19/42 hips were symptomatic, 38/42 had elevated Cobalt, and 23/42 had abnormal MRI findings. 40% of aspirates were Class I (benign), 17% Class 2, and 43% Class 3. Class 2 and 3 aspirates are associated with abnormal MRI Mid-term Outcomes and Evaluation Following Implantation with a Recalled Modular Neck Femoral Stem, elevated Cobalt, and a high rate of revision (71% and 72%, respectively). A small subset of patients (2/38) with symptoms, normal labs and MRI, had abnormal aspirates with extensive tissue necrosis at revision. A significant proportion of the aspirates were unable to complete a cell count due to cellular degradation or degeneration, or inability to process a thick fluid sample. For those samples that were processed, cells counts were variable in terms of the differential of neutrophils, lymphocytes, and monocytes. We noted a much higher percentage of patients with elevated Cobalt levels (90%) versus Chromium (22%), which appears to be consistent with contemporary literature. The utility of this diagnostic test may be apparent when looking more closely at select patients. Within the patients who have been revised, there were 2 patients who were symptomatic, yet had normal cobalt and chromium labs, as well as a normal MARS MRI, yet had Class 3 aspirates, and were noted to have moderate to severe soft tissue necrosis at the time of revision surgery. These patients may potentially be overlooked for early revision.

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The diaphyseal aseptic tibial non-union after failed previous treatment options managed with the reamed intramedullary locking nail

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Tibial nonunions constitute the majority of long bone nonunions seen by orthopaedic surgeons. In this article, we present our approach to the surgical treatment of noninfected tibial shaft nonunions. Between 2008 and 2014, 33 patients with aseptic diaphyseal tibial nonunion was treated by reamed intramedullary nailing and were retrospectively reviewed. The initial fracture management consisted of external fixation (27 patients), plate fixation (2 patients) and cast treatment (4 patients). All patients, preoperatively, were evaluated for the signs of the infection, by the same protocol. There were 13 hypertrophic, 16 oligotrophic (atrophic) and 4 defect nonunions registered in our material. Patients were examined regularly during followed-up for a minimum of 12 months period for clinical and radiological signs of union, infection, malunion, malalignment, limb shortening, and implant failure. The time that elapsed from injury to intramedullary nailing ranged from 9 months to 48 months (mean 17 months).Open intramedullary nailing was unavoidable in 25 cases (75,75%), while closed nailing was performed in 8 patients (24,25%). Osteotomy or resection of the fibula was performed in 78,8% of the cases. All patients were followed up in average period of 2 years postoperative (range 1–4 years), and 31(93,9%) patients achieved a solid union within the first 8 months. Mean union time was 5±0.8 months. Complications included 2 (6,06%) patients, one with deep infection and another case with absence of bone healing. Anatomical alignment has been achieved in the majority of patients, 28 patients (84,8%). The additionally autogenous bone chips were added in 4 patients (12,1%) where cortical defect was greater than 50% of the bone circumference. In conclusion, a reamed intramedullary nail provides optimal conditions for stable fixation, good rotational control, adequate alignment, early weight-bearing and a high union rate of tibial non-unions. Reaming of the medullary canal with preservation of periosteal sleeve create the "breeding ground" for sound healing of tibial shaft nonunions.

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A simple intervention to increase VTE prophylaxis compliance in neck of femur fracture patients

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Fragility and hip fractures are increasingly more common due to an ageing population. They represent a significant healthcare burden due to the high morbidity and mortality associated with each fracture. VTE is one of the dangerous and significant complications, thus prevention is key. Thromboprophylaxis has shown to significantly reduce the incidence of fatal VTE complications. We assessed compliance with VTE prophylaxis in post-operative neck of femur fracture patients. NICE guidance recommends all patients with hip fractures should have 28-35 days of thromboprophylaxis starting 6-12 hours after surgery provided there are no contraindications.

We analysed 95 patient records between April and June 2018 and looked at 82 records following a strict inclusion/exclusion criteria. We found 77/82 patients were covered with anticoagulation at discharge. We set up a simple intervention with the new cycle of junior doctors by creating posters in key prescribing areas of wards to remind them of the NICE guidance. We repeated the methodology between August and October 2018 and found 64/64 patients were covered with anticoagulation at discharge. Our findings show a simple intervention can radically improve compliance to national guidance. This is in keeping with a previous similar study conducted in 2014 where compliance to thromboprophylaxis prescribing following neck of femur fractures improved following a simple intervention of small labels on prescribing computers.

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Biological preservation in massive retracted rotator cuff tear

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Introduction: Massive rotator-cuff tear results in painful loss of shoulder function with surgical challenges. Fascia-lata autograft has shown promising results in recent era; though data is scarce.

Methods: This case series was conducted in our department during 2016-18. The cases irrespective of age/gender with massive rotator-cuff injury assessed on MRI/Arthroscopy were included. Fascia-lata graft used to bridge the gap by open surgical technique. The outcomes were assessed by change in pain on VAS and disability on SPADI score.

Results: In this study out of 10 cases 8 were male. Mean age of participants was 46.21±8.21 years. Postsurgical pain reduction on VAS and increase in range of motion was as follows (table I).

Discussion: Fascia-lata repair led to significant results in terms of pain relief and reduction in disability. These findings were supported by many studies i.e. Dimitrios et al showing similar results in pain relief on constant score, ROM and post-operative strength (p= <0.05). Galatz's study on animal model show similar results.

Conclusion: Fascia-lata repair in massive rotator-cuff injuries gives substantial outcome in pain relief as well as reduction in disability

Pre-surgery disability	Change in VAS	p
Crippled	5.12±0.89	0.01
Severe	3.97±0.65	0.01
moderate	1.45±0.43	-
Range of motion		
Crippled	43.21±12.31	0.001
Severe	30.24±9.45	0.001
Moderate	17.21±6.31	-

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Functional Outcome of Arthroscopic Bankart repair for anterior Shoulder Instability

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Aim: Bankart lesion is the common cause of anterior shoulder instability in sports injuries. The purpose of this study was to evaluate the functional outcome of arthroscopic Bankart repair for anterior instability of shoulder joint.

Methodology: It was a retrospective study done at Hand and Upper Limb Surgery (HULS) Center, CMH Lahore Medical College, Lahore, Pakistan, from January 2017 till July 2018. We included 60 patients who underwent arthroscopic Bankart repair with the help of anchor sutures. Pre-operative assessment included detailed history, physical examination, joint hyper laxity, plain radiographs, MR arthrogram and in some cases CT scan of the involved shoulder joint. Post operatively, functional outcome was evaluated by complete examination of both shoulders in terms of range of motion, Rowe score, Oxford shoulder instability score and Constant score. Comparison was made with the normal one. Data was analyzed with SPSS ver. 21.

Results: There were 57 male and 3 females with mean age at the time of operation 41.35±13.86 (range17-78) years. Right side was involved in 66.7% and dominant side in 70% patients. All patients were followed for minimum one year and mean follow up was 18.25 ±3.5 (range 11-22) months. At last follow up the mean Rowe score was 92.48 ±6.5 and 88.3% (53), 8.3% (5), 3.3% (2) belong to excellent, good and fair group respectively. Mean Oxford shoulder instability score was 43.03±5.99 and 83.4% (50), 13.3% (8) and 3.3% (10) belong to excellent, good and fair group respectively. Mean Contant score was 91.7±11.6 and 80% (48), 10% (6) 6.7% (4) and 3.3% (2) belong to excellent, good, fair and poor group respectively.

Conclusion: This study shows arthroscopic shoulder stabilization is an expedient procedure with excellent results for recurrent shoulder dislocation. We strongly recommend it for anterior instability of shoulder joint.

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Distance between tibial tubercle and trochlear groove correlates with lower limb axial alignment

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Purpose: To correlate the tibial tubercle to trochlear groove distance with axial limb alignment. The hypothesis is that as internal torsion of the distal femur or external torsion of the proximal tibial increase, the tibial tubercle to trochlear groove distance increases.

Methods: We designed a cross-sectional study approved by our institutional ethics review board. We reviewed 32 computed tomography angiographies of asymptomatic patients. Lower limb torsion, femoral torsion, tibial torsion and tibial tubercle to trochlear groove distance were measured. A regression analysis between the tibial tubercle to trochlear groove distance and the articular torsion was performed.

Results: A positive correlation between the tibial tubercle to trochlear groove distance and the articular torsion was found. Conclusions: As external torsion between proximal tibia and distal femur increased the tibial tubercle to trochlear groove distance does so. For a correct interpretation of the tibial tubercle to trochlear groove distance, the axial alignment should be included in the regular analysis of patellofemoral disease.

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Knee infection after anterior cruciate ligament reconstruction

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Knee infection is a challenging scenario. One way to classify the infection would be as spontaneous or post-surgery, the latter having a particular relevance given the presence of synthetic materials such as screws or prostheses surrounding the joint. Open surgery has a higher rate of infection than arthroscopic procedures. Periprosthetic infection is a complication that follows arthroplasty, with an incidence that varies between 0.4% and 2.0%, while arthroscopic procedures have an incidence varying between 0.001% and 1.100%. Anterior cruciate ligament (ACL) reconstruction complication rate is low, with septic arthritis one of the most frequently seen. Early diagnosis of complications is vital to improve functional outcome. In these cases, knee pain, decreased range of motion, fever, and high C-reactive protein levels should alert any physician, and infection must not be ruled out. This article presents a case of infection after ACL reconstruction and discusses risk factors, treatment choice, antibiotic treatment length, and functional outcomes, proposing a guide for the treatment. The clinical case presented is a chronic infection due to Staphylococcus aureus that resulted in extensive cartilage damage and graft loosening; delayed diagnosis was an essential modifiable risk factor in this case. Treatment success is defined as the eradication of the infection without the need to remove the ACL graft. Risk factors for a worse outcome after ACL reconstruction infection are allograft compared to autograft and S. aureus or polymicrobial infection compared to coagulase-negative staphylococcus infection. Functional outcome is compromised by infection; however, if early diagnosis and treatment are performed, good functional results and a return to sports activities can be expected

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Premature fracture of a modular femoral neck after total hip arthroplasty: Comparison of two different stem-neck alloys

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Statement of the Problem: An alarmingly large number of femoral modular stems of titanium alloy neck suffer from premature fractures. The cobalt-chromium neck was introduced for its better wear and mechanical properties, although it fails even earlier. Until now there were no direct comparisons between two different femoral modular necks for the same type of stem implant. Experts from orthopaedic surgery and metallurgy have combined their research efforts to compare the femoral modular stem-necks of similar titanium and dissimilar titanium/cobalt-chromium alloy systems from the clinical and metallurgical points of view.

Orientation: Two premature fractured modular neck Hip endoprostheses of similar and dissimilar metals systems were investigated. Multivariate analyses were performed to assess the differences in the fretting, corrosion and fatigue of similar alloys and dissimilar alloys modular joints. Patient's demographic information was collected from medical records.

Findings: Similar stem-neck metals of hip endoprostheses failed due to continuous dynamic micro-motions, crevice corrosion, fretting and fatigue, as well as improper neck dimensions. The mechanism of titanium alloy modular neck fracture is shown in Figure 1. The dissimilar metals stem-neck fractured due to continuous dynamic micro-motions, selective leaching of cobalt ions from the cobalt-chromium-molybdenum alloy and formation of titan-chromium-molybdenum interfacial phase and severe crevice corrosion. The mechanism of cobalt-chromium-molybdenum alloy modular neck fracture is shown in Figure 2 The dissimilar joints suffered more corrosion than the similar joints due to additional galvanic corrosion.

Conclusions: Fretting, corrosion and fatigue occurred on both neck-stem retrievals of the similar and dissimilar metals. Both metal-alloy systems used in this application are known to be highly corrosion resistant and giving rise to the bio-tribo-corrosion processes needs to be understood and characterized so that appropriate changes in design and materials can be upgrade.

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New concepts in medial release based on experience with varus Tka's

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Background: Patients with severe Varus knees is common in developing countries (i.e. Middle East) where Total Knee Arthroplasty (TKA) can effectively resolve this issue. There are many methods to perform this medial release. However, each technique may have implied disadvantages. For this reason, many surgeons are unable to avoid instability and stop using semi-constrained prosthesis in this group of patients indeterminately. We have developed a new concept for this release based on our experience in performing over 5000 surgical cases to decrease subtle instability and reach nearly 0% use of semi-constrained prosthesis.

Methods: Surgical procedures were accomplished by the same surgeon with measured resection technique, and cemented posterior-stabilized prosthesis. 250 TKAs were in this study and divided them into 3 groups. First group of patients had varus deformity up to 15 degrees, second group 15-25 degrees, and the third group over 25 degrees. The medial soft tissue release was distinctive for each group by only releasing the deep MCL and capsule for the first group. We evaluated our outcome based on the Knee Society Score at 2 and 6 months, and 1 year postoperatively.

Results: Results showed that in mild deformity, there was no need for considerable release. Even in moderate deformity with little extension release to the posteromedial corner, we can obtain good balancing. For severe deformity, the main objective was to retain the superficial MCL as much as possible even by accepting some lateral widening of the joint. No patient developed postoperative medial instability.

Conclusion: This approach, considering sex, body mass index, and different soft tissue quality, as one of the alternatives in soft tissue balancing resulted in nearly 0% use of semi-constrained prosthesis and even avoidance of subtle instability in severe varus deformity cases (+25 degrees).